

## Engineering Interpretations

### ***Water Management***

Interpretations of soils for water management are given as limitations for pond reservoir areas; embankments, dikes, and levees; excavated pond (aquifer-fed); and as restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

**POND RESERVOIR AREA** is the area that holds water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by the permeability and depth to fractured or permeable bedrock, or other permeable material.

**EMBANKMENTS, DIKES, AND LEVEES** are raised structures of soil material constructed to impound water or protect land against overflow. They generally are less than 20 feet high and are constructed of "homogeneous" soil material (without a core zone) and compacted to medium density.

**EXCAVATED PONDS (AQUIFER-FED)** are bodies of water created by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds which are fed by surface runoff or that have embankments that impound water 3 feet or more above the original surface.

**DRAINAGE** is the process of removing excess surface and subsurface water from agricultural land. Soil features are listed that affect grading, excavation, and stability of trench sides or ditch banks. Features are also listed which might affect productivity after drainage is installed. The availability of drainage outlets must also be considered.

**IRRIGATION** is the controlled application of water to supplement rainfall for supporting plant growth. Soil features are listed that affect design, layout, construction, management, or performance of an irrigation system.

**TERRACES AND DIVERSIONS** are embankments or a combination of an embankment and a channel constructed across a slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope. Soil features are listed that affect the construction of terraces and diversions and that may cause problems after construction.

**GRASSED WATERWAYS** are natural or constructed channels that generally are broad and shallow and are covered with erosion-resistant grasses. They are used to conduct surface water to outlets at a nonerosive velocity. Soil features are listed that affect the construction and maintenance of the waterway, and also that affect the growth of grass after construction.

*This subsection includes:*

- **(a) Water Management**

Table 20.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40000: Barden-----	Not limited		Moderately limited percs slowly (moderately limited)	0.39	Moderately limited percs slowly (moderately limited)	0.39	Slightly limited wetness (slightly limited)	0.28	Slightly limited wetness (slightly limited)	0.28
40011: Barco-----	Limited depth to bedrock (limited) seepage (moderately limited)	0.85  0.50	Slightly limited depth to bedrock (slightly limited)	0.30	Slightly limited depth to bedrock (slightly limited)	0.30	Very limited depth to bedrock (very limited)	1.00	Limited depth to bedrock (limited)	0.85
40015: Eldorado-----	Moderately limited seepage (moderately limited)	0.50	Very limited large stones (very limited) large surface stones (moderately limited)	1.00  0.34	Limited large stones (limited) large surface stones (moderately limited)	0.96  0.34	Very limited large stones (very limited) large surface stones (moderately limited)	1.00  0.34	Very limited large stones (very limited) large surface stones (moderately limited)	1.00  0.34
40016: Eldorado-----	Moderately limited seepage (moderately limited) slope (slightly limited)	0.50  0.20	Very limited large stones (very limited) slope (limited) large surface stones (moderately limited)	1.00  0.78  0.41	Very limited large stones (very limited) droughty (limited) slope (limited)	1.00  0.83  0.78	Very limited large stones (very limited) large surface stones (moderately limited) slope (slightly limited)	1.00  0.41  0.20	Very limited large stones (very limited) droughty (limited) large surface stones (moderately limited)	1.00  0.83  0.41
40017: Maple Grove----	Moderately limited seepage (moderately limited)	0.50	Slightly limited large stones (slightly limited) percs slowly (slightly limited)	0.30  0.13	Slightly limited percs slowly (slightly limited)	0.13	Moderately limited wetness (moderately limited)	0.57	Moderately limited wetness (moderately limited)	0.57
40018: Medoc-----	Not limited		Moderately limited percs slowly (moderately limited)	0.39	Moderately limited percs slowly (moderately limited)	0.39	Limited wetness (limited)	0.89	Limited wetness (limited)	0.89

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40019: Newtonia-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
Eldorado-----	Moderately limited seepage (moderately limited)	0.50	Very limited large stones (very limited)	1.00	Limited large stones (limited)	0.96	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
40020: Newtonia-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
Eldorado-----	Moderately limited seepage (moderately limited)	0.50	Very limited large stones (very limited)	1.00	Limited large stones (limited)	0.96	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
40021: Opolis-----	Limited slope (limited)	0.89	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Limited slope (limited)	0.89	Limited slope (limited)	0.89
			percs slowly (moderately limited)	0.40	percs slowly (moderately limited)	0.40	wetness (limited)	0.63	wetness (limited)	0.63
Hepler-----	Not limited		Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Moderately limited wetness (moderately limited)	0.60	Moderately limited wetness (moderately limited)	0.60
			percs slowly (slightly limited)	0.17	percs slowly (slightly limited)	0.17				
40022: Opolis-----	Not limited		Moderately limited percs slowly (moderately limited)	0.40	Moderately limited percs slowly (moderately limited)	0.40	Limited wetness (limited)	0.63	Limited wetness (limited)	0.63
40023: Opolis-----	Not limited		Moderately limited percs slowly (moderately limited)	0.40	Moderately limited percs slowly (moderately limited)	0.40	Limited wetness (limited)	0.63	Limited wetness (limited)	0.63
40024: Opolis-----	Not limited		Moderately limited percs slowly (moderately limited)	0.40	Moderately limited percs slowly (moderately limited)	0.40	Limited wetness (limited)	0.63	Limited wetness (limited)	0.63

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40026: Sylvania-----	Moderately limited seepage (moderately limited) depth to bedrock (moderately limited)	0.50 0.50	Slightly limited percs slowly (slightly limited)	0.13	Slightly limited percs slowly (slightly limited)	0.13	Moderately limited wetness (moderately limited) depth to bedrock (moderately limited)	0.53 0.39	Moderately limited wetness (moderately limited) depth to bedrock (moderately limited)	0.53 0.50
40027: Sylvania-----	Moderately limited depth to bedrock (moderately limited) seepage (moderately limited) slope (slightly limited)	0.37 0.32 0.20	Limited slope (limited) percs slowly (slightly limited)	0.78 0.13	Limited slope (limited) percs slowly (slightly limited)	0.78 0.13	Slightly limited slope (slightly limited) depth to bedrock (slightly limited) wetness (slightly limited)	0.20 0.17 0.04	Moderately limited depth to bedrock (moderately limited) slope (slightly limited) wetness (slightly limited)	0.37 0.20 0.04
40028: Sylvania-----	Limited depth to bedrock (limited) seepage (moderately limited) slope (slightly limited)	0.65 0.32 0.20	Limited slope (limited) percs slowly (slightly limited)	0.78 0.13	Limited slope (limited) percs slowly (slightly limited)	0.78 0.13	Limited depth to bedrock (limited) slope (slightly limited)	0.66 0.20	Limited depth to bedrock (limited) slope (slightly limited)	0.65 0.20
40029: Sylvania-----	Limited slope (limited) depth to bedrock (moderately limited)	0.89 0.40	Very limited slope (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited slope (very limited) percs slowly (slightly limited)	1.00 0.13	Limited slope (limited) wetness (moderately limited) depth to bedrock (slightly limited)	0.89 0.53 0.25	Limited slope (limited) wetness (moderately limited) depth to bedrock (moderately limited)	0.89 0.53 0.40
44000: Cherokee-----	Not limited		Moderately limited percs slowly (moderately limited)	0.40	Moderately limited percs slowly (moderately limited)	0.40	Limited wetness (limited)	0.89	Limited wetness (limited)	0.89
44002: Carl-----	Not limited		Very limited percs slowly (very limited)	1.00	Very limited percs slowly (very limited) slow intake (moderately limited)	1.00 0.60	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44004: McCune-----	Not limited		Moderately limited percs slowly (moderately limited)	0.39	Moderately limited percs slowly (moderately limited)	0.39	Moderately limited wetness (moderately limited)	0.60	Moderately limited wetness (moderately limited)	0.60
46001: Verdigris-----	Moderately limited seepage (moderately limited)	0.50	Limited flooding (limited)	0.90	Limited flooding (limited)	0.90	Not limited		Not limited	
46002: Hepler-----	Not limited		Moderately limited flooding (moderately limited) percs slowly (slightly limited)	0.60 0.17	Moderately limited flooding (moderately limited) percs slowly (slightly limited)	0.60 0.17	Moderately limited wetness (moderately limited)	0.60	Moderately limited wetness (moderately limited)	0.60
46004: Osage-----	Not limited		Very limited percs slowly (very limited) flooding (moderately limited)	1.00 0.60	Very limited percs slowly (very limited) flooding (moderately limited) slow intake (moderately limited)	1.00 0.60 0.60	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00
46005: Verdigris-----	Moderately limited seepage (moderately limited)	0.50	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Not limited		Not limited	
70006: Crelton-----	Moderately limited seepage (moderately limited)	0.50	Slightly limited percs slowly (slightly limited) slope (slightly limited)	0.13 0.10	Slightly limited percs slowly (slightly limited) slope (slightly limited)	0.13 0.10	Moderately limited wetness (moderately limited)	0.36	Limited rooting depth (limited) wetness (moderately limited)	0.80 0.36
70012: Hoberg-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Moderately limited wetness (moderately limited)	0.44	Limited rooting depth (limited) wetness (moderately limited)	0.80 0.44

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70045: Keeno-----	Very limited seepage (very limited) slope (moderately limited)	1.00  0.30	Limited slope (limited) large stones (limited)	0.98  0.65	Very limited droughty (very limited) slope (limited) large stones (slightly limited)	1.00  0.98  0.01	Very limited large stones (very limited) wetness (moderately limited) slope (moderately limited)	1.00  0.44  0.30	Very limited droughty (very limited) large stones (very limited) rooting depth (limited)	1.00  1.00  0.80
70056: Crackerneck---	Limited slope (limited) seepage (moderately limited)	0.89  0.50	Very limited slope (very limited) large stones (very limited) percs slowly (slightly limited)	1.00  1.00  0.26	Very limited slope (very limited) droughty (very limited) large stones (moderately limited)	1.00  1.00  0.58	Very limited large stones (very limited) slope (limited) wetness (moderately limited)	1.00  0.89  0.31	Very limited large stones (very limited) droughty (very limited) slope (limited)	1.00  1.00  0.89
70057: Crackerneck---	Very limited slope (very limited) seepage (moderately limited)	1.00  0.50	Very limited slope (very limited) large stones (very limited) percs slowly (slightly limited)	1.00  1.00  0.26	Very limited slope (very limited) droughty (very limited) large stones (moderately limited)	1.00  1.00  0.58	Very limited slope (very limited) large stones (very limited) wetness (moderately limited)	1.00  1.00  0.31	Very limited slope (very limited) large stones (very limited) droughty (very limited)	1.00  1.00  1.00
70058: Crackerneck---	Moderately limited seepage (moderately limited) slope (slightly limited)	0.50  0.20	Limited large stones (limited) slope (limited) percs slowly (slightly limited)	0.99  0.78  0.26	Limited droughty (limited) slope (limited) percs slowly (slightly limited)	0.88  0.78  0.26	Very limited large stones (very limited) wetness (moderately limited) slope (slightly limited)	1.00  0.31  0.20	Very limited large stones (very limited) droughty (limited) wetness (moderately limited)	1.00  0.88  0.31
70059: Goss-----	Very limited slope (very limited) seepage (very limited)	1.00  1.00	Very limited slope (very limited) large surface stones (very limited) large stones (limited)	1.00  1.00  0.75	Very limited slope (very limited) large surface stones (very limited) droughty (limited)	1.00  1.00  0.61	Very limited slope (very limited) large surface stones (very limited) large stones (very limited)	1.00  1.00  1.00	Very limited slope (very limited) large stones (very limited) large surface stones (very limited)	1.00  1.00  1.00

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70060: Hoberg-----	Moderately limited seepage (moderately limited)	0.50	Moderately limited large stones (moderately limited) percs slowly (moderately limited)	0.51 0.39	Moderately limited percs slowly (moderately limited) droughty (slightly limited)	0.39 0.23	Moderately limited wetness (moderately limited) large stones (slightly limited)	0.44 0.04	Limited rooting depth (limited) wetness (moderately limited) droughty (slightly limited)	0.80 0.44 0.23
Eldorado-----	Moderately limited seepage (moderately limited)	0.50	Very limited large stones (very limited)	1.00	Limited large stones (limited)	0.96	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
Pomme-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
70061: Pomme-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
70062: Pomme-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
Rueter-----	Very limited seepage (very limited)	1.00	Very limited large stones (very limited)	1.00	Limited droughty (limited) large stones (moderately limited)	0.79 0.52	Very limited large stones (very limited)	1.00	Very limited large stones (very limited) droughty (limited)	1.00 0.79
70063: Rueter-----	Very limited seepage (very limited) slope (limited)	1.00 0.89	Very limited slope (very limited) large stones (very limited)	1.00 1.00	Very limited slope (very limited) droughty (limited) large stones (limited)	1.00 0.99 0.80	Very limited large stones (very limited) slope (limited)	1.00 0.89	Very limited large stones (very limited) droughty (limited) slope (limited)	1.00 0.99 0.89

Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70064: Rueter-----	Very limited seepage (very limited)	1.00	Very limited large stones (very limited)	1.00	Limited droughty (limited) large stones (moderately limited)	0.79 0.52	Very limited large stones (very limited)	1.00	Very limited large stones (very limited) droughty (limited)	1.00 0.79
70065: Rueter-----	Very limited seepage (very limited) slope (slightly limited)	1.00 0.20	Very limited large stones (very limited) slope (limited)	1.00 0.78	Limited droughty (limited) slope (limited) large stones (moderately limited)	0.79 0.78 0.52	Very limited large stones (very limited) slope (slightly limited)	1.00 0.20	Very limited large stones (very limited) droughty (limited) slope (slightly limited)	1.00 0.79 0.20
70066: Winnipeg-----	Moderately limited seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
71751: Bearthicket---	Moderately limited seepage (moderately limited)	0.50	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Not limited		Not limited	
73031: Gerald-----	Moderately limited seepage (moderately limited)	0.50	Very limited percs slowly (very limited)	1.00	Very limited percs slowly (very limited)	1.00	Moderately limited wetness (moderately limited)	0.60	Moderately limited wetness (moderately limited)	0.60
75376: Cedargap-----	Moderately limited seepage (moderately limited)	0.50	Limited flooding (limited)	0.90	Limited flooding (limited)	0.90	Not limited		Not limited	
99000: Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99002: Borrow areas--	Not rated		Not rated		Not rated		Not rated		Not rated	



Table 20.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfill-----	Very limited slope (very limited) seepage (very limited)	1.00  1.00	Very limited slope (very limited) percs slowly (very limited)	1.00  1.00	Very limited percs slowly (very limited) slope (very limited)	1.00  1.00	Very limited slope (very limited) erodes easily (moderately limited)	1.00  0.60	Very limited slope (very limited) erodes easily (moderately limited)	1.00  0.60
99010: Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99011: Kanima-----	Moderately limited seepage (moderately limited) slope (moderately limited)	0.50  0.30	Limited slope (limited)	0.98	Limited slope (limited) droughty (slightly limited)	0.98  0.09	Moderately limited slope (moderately limited)	0.30	Moderately limited slope (moderately limited) droughty (slightly limited)	0.30  0.09